

*In the Claims*

1 1. (Canceled).

1 2. (Currently amended) A method operable on a clocking system that includes a  
2 plurality of tiers of clock dividers that successively divide a reference frequency derived  
3 from a master clock frequency for producing a plurality of desired frequencies,  
4 comprising:  
5 (A) determining a least common multiple (LCM) of the desired frequencies and the  
6 master clock frequency;  
7 (B) selecting divider values for one of the plurality of tiers of dividers subject to a  
8 requirement that input frequencies to that tier of dividers fall within a predetermined  
9 range and that they add a minimum number of few new factors to the LCM;  
10 (C) multiplying the LCM by any new factors needed to realize the dividers of the selected  
11 tier of dividers to yield a LumpLCM;  
12 (D) repeating steps B and C for all except the last tier of dividers, including updating the  
13 LumpLCM for each repetition to include any new factors needed to realize the dividers  
14 for the respective tier; and  
15 (E) computing values for the last tier of dividers responsive to LumpLCM and the  
16 reference frequency; and  
17 (F) configuring the clocking system responsive to at least one of the divider values.

1 3. (Previously presented) A method as recited in claim 2, wherein the reference  
2 frequency is defined as a product of a master clock frequency and a K multiplier, and  
3 wherein the K multiplier is variable for varying the reference frequency.

1 4. (Original) A method as recited in claim 3, further comprising:  
2 determining an integer p such that  $p * \text{LumpLCM}$  falls within an allowable range  
3 of the reference frequency; and  
4 computing the reference frequency as the product  $p * \text{LumpLCM}$ .

- 1 5. (Original) A method as recited in claim 4, further comprising:  
2 computing the K multiplier as the reference frequency divided by the master clock  
3 frequency.
- 1 6. (Original) A method as recited in claim 2, wherein the reference frequency is defined  
2 as a product of a master clock frequency and a fixed K multiplier.
- 1 7. (Original) A method as recited in claim 6, further comprising:  
2 determining a least common multiple (BigLCM) of the desired frequencies and  
3 the reference frequency,  
4 wherein the step (B) of selecting divider values for one of the plurality of tiers of  
5 dividers is subject to a requirement that input frequencies add a minimum number of few  
6 new factors to BigLCM.
- 1 8. (Original) A method as recited in claim 7, further comprising:  
2 determining a real number  $n$  such that  $n * \text{LumpLCM}$  equals the reference  
3 frequency; rounding  $n$  to the nearest integer to yield  $n_r$ ; and  
4 modifying the desired frequencies by a factor  $n_r/n$  to account for rounding errors  
5 introduced in the rounding step.
- 1 9. (Amended) A method as recited in claim 2, wherein the clocking system consists of  
2 two tiers of dividers.
- 1 10. (Currently amended) A method operable on a clocking system that includes a  
2 plurality of tiers of clock dividers that successively divide a reference frequency, which is  
3 variable over an allowable range, for producing a plurality of desired frequencies, the  
4 reference frequency being defined as a product of a master clock frequency and a variable  
5 multiplier K, the method comprising:  
6 (A) determining a least common multiple (LCM) of the desired frequencies and the  
7 master clock frequency;

8 (B) selecting divider values for one of the plurality of tiers of dividers subject to a  
9 requirement that input frequencies to that tier of dividers fall within a predetermined  
10 range and that they add a minimum number of few new factors to the LCM;  
11 (C) multiplying the LCM by any new factors needed to realize the dividers of the selected  
12 tier of dividers to yield a new LCM as LumpLCM;  
13 (D) determining an integer  $p$  such that  $p * \text{LumpLCM}$  falls within an allowable range of  
14 the reference frequency; and  
15 (E) computing the reference frequency as the product  $p * \text{LumpLCM}$ ; and  
16 (F) inserting test program code into a test program for automatic test equipment,  
17 responsive to at least one of the divider values.

1 11. (Original) A method as recited in claim 10, further comprising:

2 repeating steps B and C for all except the last tier of dividers, including updating  
3 LumpLCM for each repetition to include any new factors needed to realize the dividers  
4 for the respective tier.

1 12. (Original) A method as recited in claim 10, further comprising:

2 computing values for the last tier of dividers responsive to LumpLCM and the  
3 reference frequency.

1 13. (Original) A method as recited in claim 12, further comprising:

2 computing the K multiplier as the reference frequency divided by the master clock  
3 frequency.

1 14. (Original) A method as recited in claim 13, wherein the reference frequency is  
2 defined as a product of a master clock frequency and a fixed K multiplier.

1 15. (Currently amended) A method operable on a clocking system that includes a  
2 plurality of tiers of clock dividers that successively divide a fixed reference frequency for

3 producing a plurality of desired frequencies, the reference frequency being defined as a  
 4 product of a master clock and a multiplier K, the method comprising:  
 5 (A) determining a least common multiple (LCM) of the desired frequencies and the  
 6 master clock frequency;  
 7 (B) determining a least common multiple (BigLCM) of the desired frequencies and the  
 8 fixed reference frequency;  
 9 (C) selecting divider values for one of the plurality of tiers of dividers subject to a  
 10 requirement that input frequencies to that tier fall within a predetermined range and that  
 11 they add a minimum number of few new factors to BigLCM;  
 12 (D) multiplying the LCM by any new factors needed to realize the dividers of the selected  
 13 tier of dividers to yield a LumpLCM;  
 14 (E) determining a real number n such that  $n * \text{LumpLCM}$  equals the reference frequency;  
 15 (F) rounding n to the nearest integer to yield  $n_r$ ; and  
 16 (G) modifying the desired frequencies by a factor  $n_r/n$  to account for rounding errors  
 17 introduced in step F; and  
 18 (H) inserting test program code into a test program for automatic test equipment,  
 19 responsive to at least one of the divider values.

1 16. (Original) A method as recited in claim 15, wherein the number of tiers of dividers is  
 2 two.

1 17. (Original) A method as recited in claim 15, further comprising, prior to step A,  
 2 attributing at least two of the desired frequencies to a coherency group, and performing  
 3 steps A-G using only the desired frequencies attributed to the coherency group.

1 18. (Original) A method as recited in claim 17, further comprising performing steps A-G  
 2 independently for different coherency groups.

1 19. (Original) A method as recited in claim 18, wherein coherency groups are user-  
 2 assignable.

- 1 20. (Original) A method as recited in claim 15, wherein the tier of dividers selected in
- 2 step C is the tier of dividers whose output produces the desired frequencies.